

C A S I T A  
S A M A

TUCSON ADU DESIGN COMPETITION

18 SEPTEMBER 2023

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## PROJECT DESCRIPTION



Casita Sama's design utilizes an innovative low-cost modular construction system which is ADA-compliant and fully adaptable to accommodate a phased construction process for expansion over time as finances become available.

A Studio (370 sf) can be developed into a 1-Bedroom (513 sf) and then a 2-Bedroom (643 sf) ADU, with no structural demolition required by means of strategic placement of openings.

The Casita's services are arranged around a single accessible service shaft, minimizing energy consumption and eliminating the need for modifications throughout a phased construction process, or the Casita's lifespan.

At its core the design is highly responsive to climatic conditions and fully adaptive to various site orientations, all while remaining simple in its overall design aesthetic, allowing seamless integration with all pre-existing styles of any Main Residence.

The combination of these carefully considered design strategies ultimately allows for all 5 Competition Categories to be addressed in a single design: Casita Sama.



BASIC GEOMETRY

DEEP OVERHANGS

PUNCTURED MASSING

NATURAL MATERIALS

HARMONIOUS WITH NATURE





INTERIOR REFERENCES

CALM SPACES

LIMITED MATERIAL PALETTE

CONNECTED TO NATURE



EAST WEST  
DESIGN ORIENTATION



E/W STUDIO PLAN



- 1 ENTRY
- 2 BEDROOM
- 3 LIVING / DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
- 6 LAUNDRY
- 7 BATHROOM
- 8 OFFICE
- 9 STORAGE
- 10 BUILT IN CLOSET
- 11 SEMI-PRIVATE TERRACE
- 12 PRIVATE GARDEN
- 13 STORAGE TANK
- 14 TRASH
- 15 FRIDGE



# E/W 1-BEDROOM PLAN



- 1 ENTRY
- 2 LIVING
- 3 DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
- 6 LAUNDRY
- 7 BATHROOM
- 8 PRIMARY BEDROOM
- 9 OFFICE
- 10 STORAGE
- 11 BUILT IN CLOSET
- 12 SEMI-PRIVATE TERRACE
- 13 PRIVATE GARDEN
- 14 STORAGE TANK
- 15 TRASH
- 16 GARDEN BENCH



# E/W 2-BEDROOM PLAN

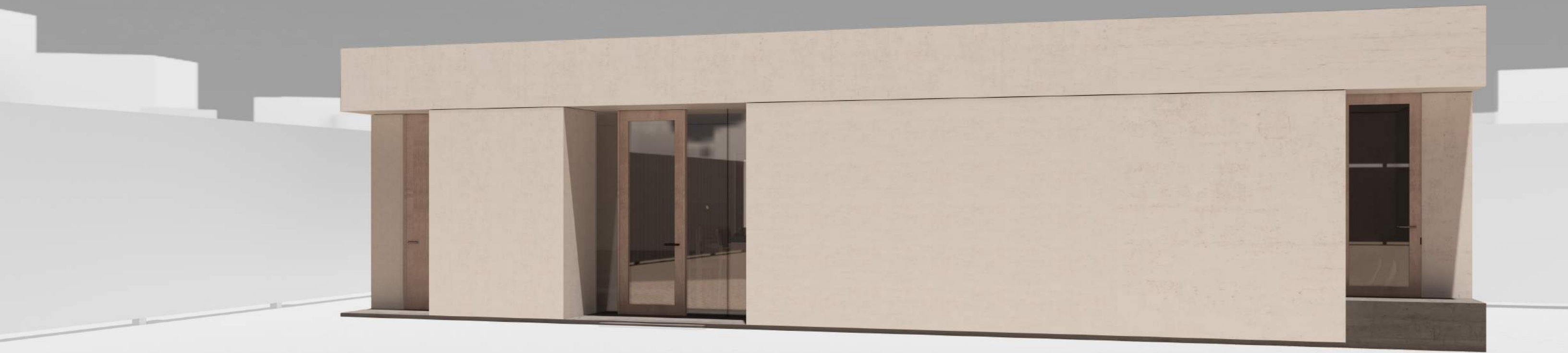


- 1 ENTRY
- 2 LIVING
- 3 DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
- 6 LAUNDRY
- 7 BATHROOM
- 8 PRIMARY BEDROOM
- 9 SECONDARY BEDROOM
- 10 OFFICE
- 11 STORAGE
- 12 BUILT IN CLOSET
- 13 SEMI-PRIVATE TERRACE
- 14 PRIVATE GARDEN
- 15 STORAGE TANK
- 16 TRASH
- 17 GARDEN BENCH



























E/W UNITS - DINING + LIVING





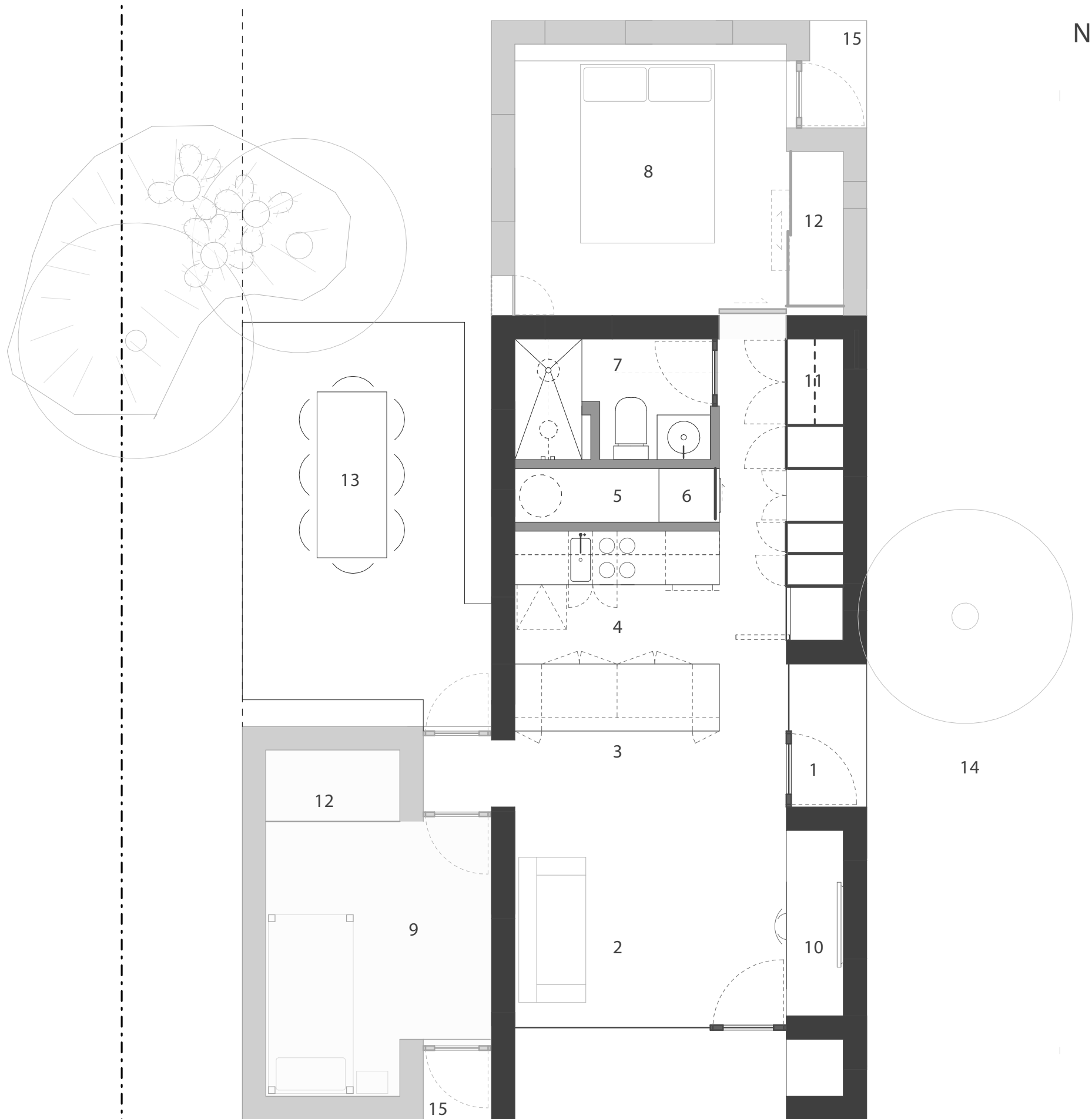




NORTH SOUTH  
DESIGN ORIENTATION



# N/S STUDIO WITH EXPANSION OPTIONS



- 1 ENTRY
- 2 LIVING
- 3 DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
- 6 LAUNDRY
- 7 BATHROOM
- 8 PRIMARY BEDROOM
- 9 SECONDARY BEDROOM
- 10 OFFICE
- 11 STORAGE
- 12 BUILT IN CLOSET
- 13 PRIVATE TERRACE
- 14 SEMI-PRIVATE GARDEN
- 15 GARDEN BENCH



S I T E   A D A P T A T I O N

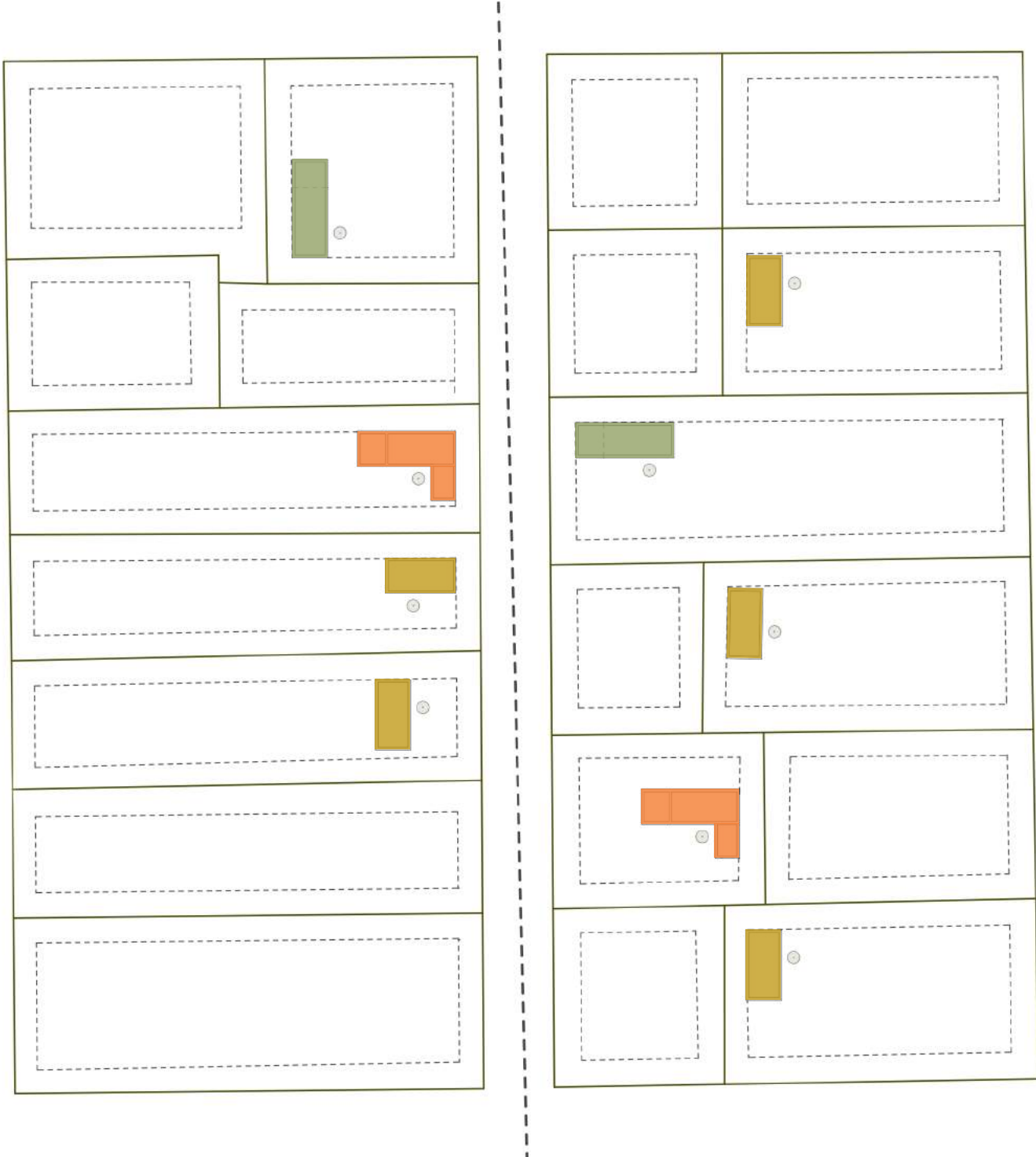


SITE ADAPTATION - MACRO SCALE





SITE ADAPTATION - MACRO SCALE - UNIT TYPES



- 5 X STUDIO
- 2 X 1-BEDROOM
- 2 X 2-BEDROOM



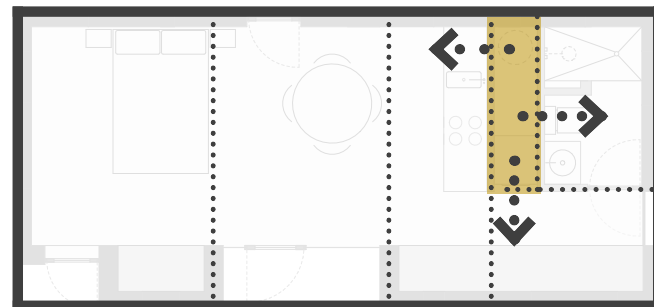
DESIGN STRATEGY





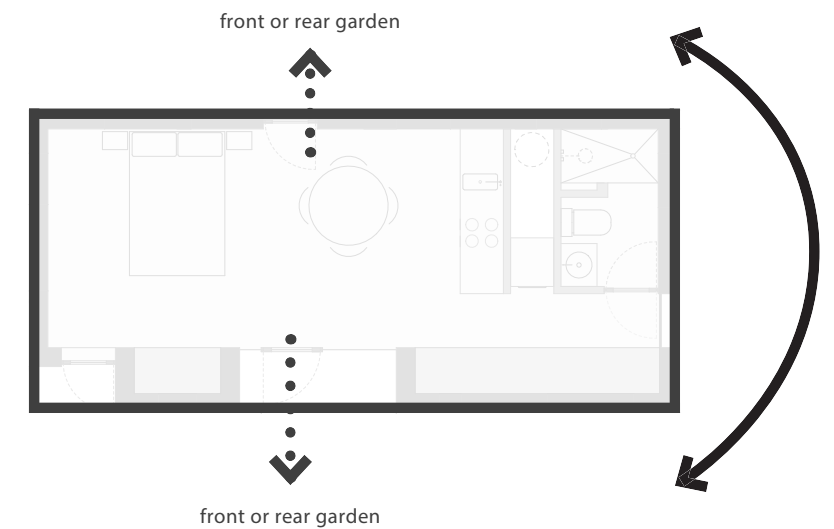
BASE MODEL

The space-efficient Studio Base Model includes all basic elements of a fully accessible ADU, Open Plan Kitchen, Living/Dining and Bedroom with a separate Bathroom and dedicated Laundry.



SERVICES

All services for the Kitchen, Bathroom and Laundry are strategically arranged around a fully accessible service shaft, minimizing energy usage while eliminating the need for any modifications throughout a phased construction process or the duration of the ADU's lifespan. The use of the service shaft also allows for the first and second fixing of services to be combined into one, providing additional cost savings to the owner.



FLEXIBILITY

A linear layout with access on both long elevations allows for more flexibility in site placement. This helps accommodate a variety of site requirements and homeowners' preferences.





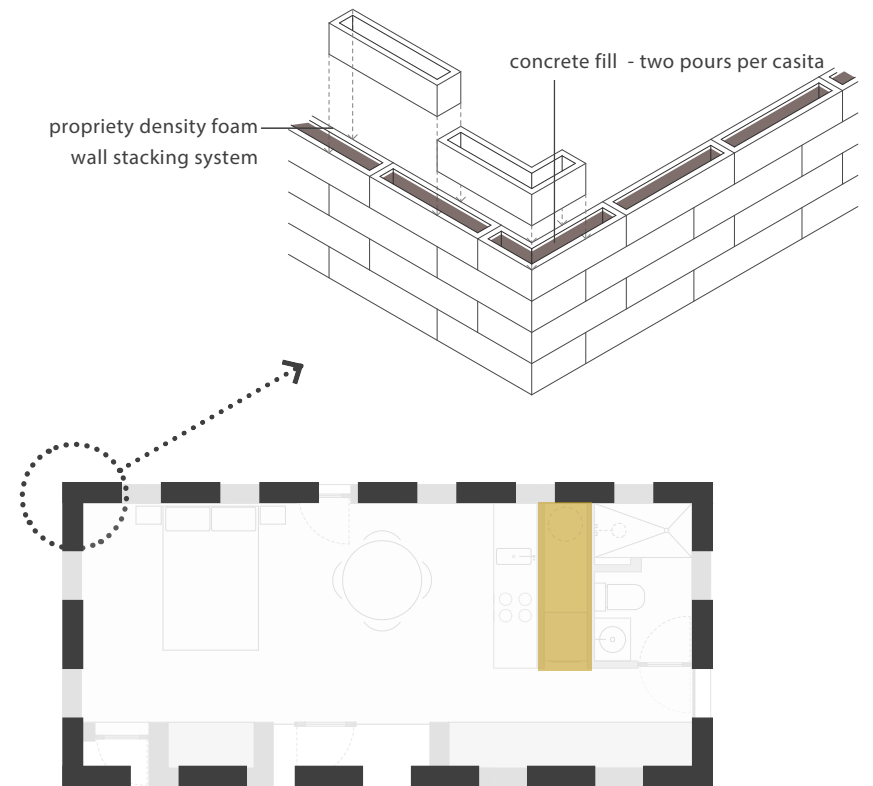
EXPANSION

A Studio (370 sf) can later be developed into a 1-Bedroom (513 sf) and then 2-Bedroom ADU Unit (643 sf), with no structural demolition work by means of strategic placement of openings.



FOOTPRINT

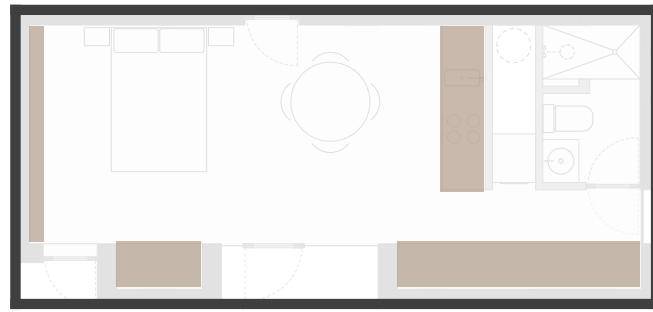
By expanding into an L-Shape for the 2 Bedroom Unit, the overall design's footprint is kept compact, allowing it to be suited to a larger variety of lot sizes. The L-Shape also further distinguishes a semi-private outdoor garden/terrace for the ADU relative to the Main Residence.



CONSTRUCTION ECONOMICS

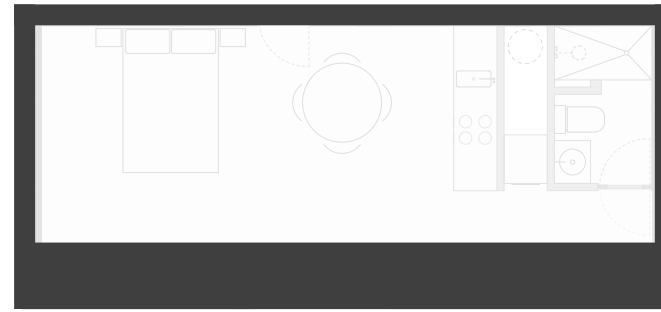
By utilizing an innovative, low-cost modular system, the overall price point of the ADU can be kept low due to speed and ease of construction and/or self-construction. Additionally, the implementation of the accessible service shaft which connects the Shower, WC, Basin, Washing Machine, Dryer, Stove, Oven, Sink, Dishwasher, Extraction, Air Conditioner and Water Heater, allows the cost of installation and maintenance to be minimized due to ease of access and adaptability.





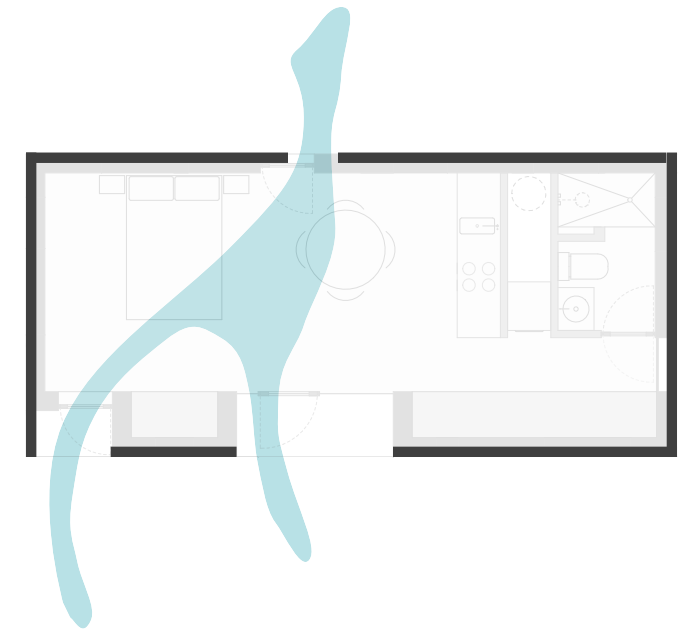
FINISHES AND FIT-OUT

Within each design module there is a range of finishes and fit-out options to choose from to meet any homeowners' budget. All basic options can easily be upgraded to a full fit-out as financing becomes available without any major modifications or demolition.



INSULATION

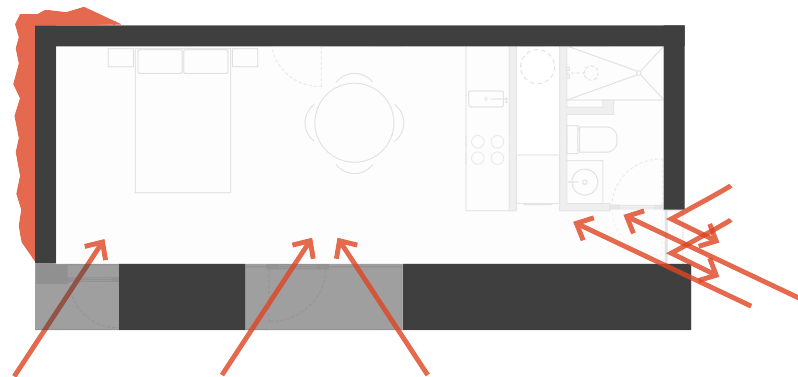
By thickening the southern wall through the placement of utilitarian functions, keeping east and west openings minimal, as well as making use of an R28 wall system, a highly efficient insulated unit is obtained, minimizing overall energy consumption.



NATURAL VENTILATION

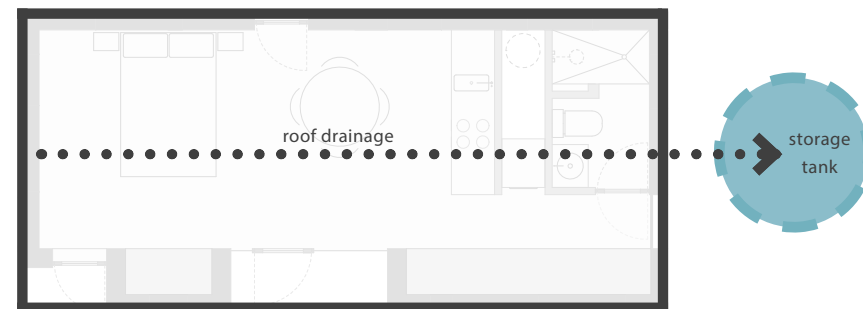
With the placement of openings on opposite sides of each room, ample natural cross ventilation is achieved. Mosquito screens to all openings further increases the frequency that this passive cooling system can be utilized.





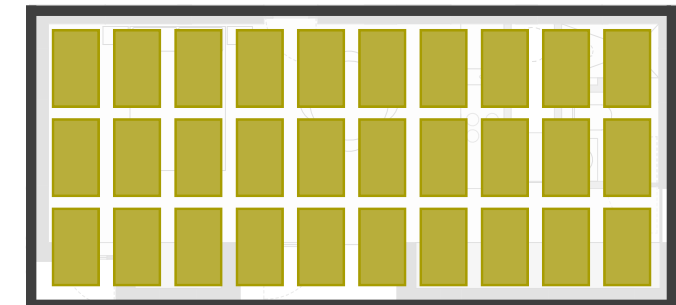
REACTION TO THE SUN

The thickening of the southern wall through the placement of utilitarian functions allows for the creation of glazed openings to occur within a carefully calculated overhang. This overhang strategically shades the south facing glazed openings, maximizing winter sun penetration and minimizing summer sun penetration. Openings on the west are minimized in the Studio and completely eliminated in the 1 Bedroom and 2 Bedroom units to shield the ADU from the harsh morning and afternoon summer sun.



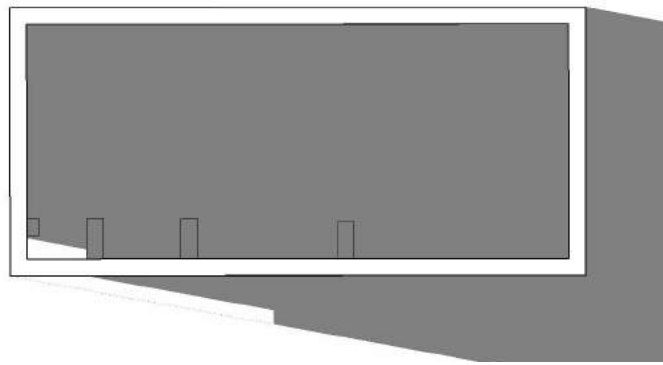
RAINWATER HARVESTING

The linear design layout allows for easy directional drainage of storm water to a single collection point for an optional storage tank.

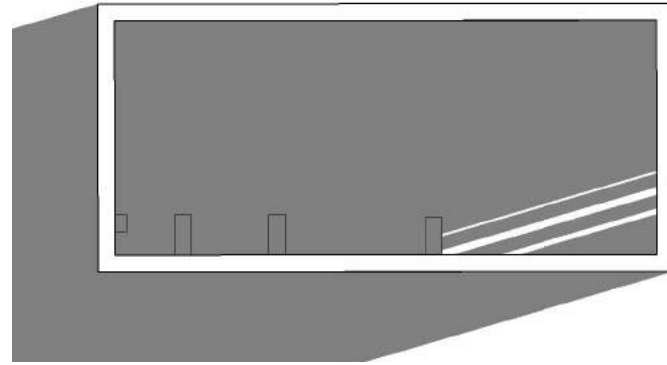


SOLAR READY

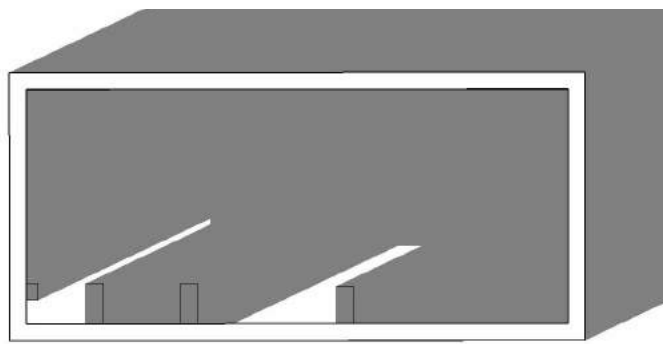
The linear design allows for an efficient solar panel layout to the parapet roof and can easily be installed during a phased construction process with the service shaft. Battery packs can be placed in the service shaft.



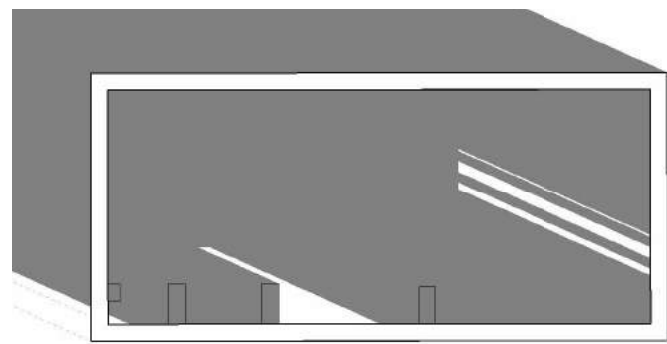
SUMMER AFTERNOON



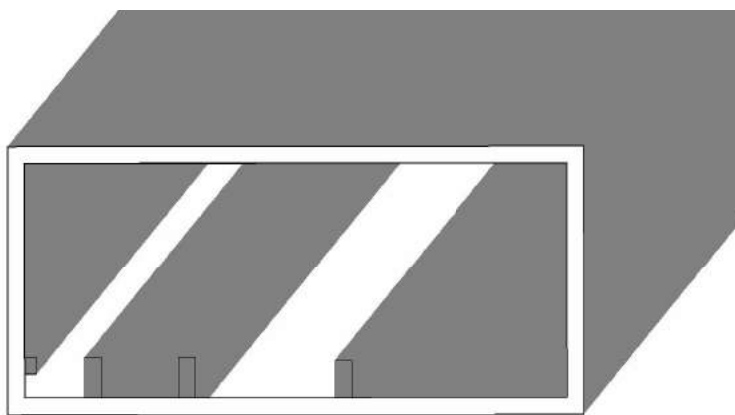
SUMMER MORNING



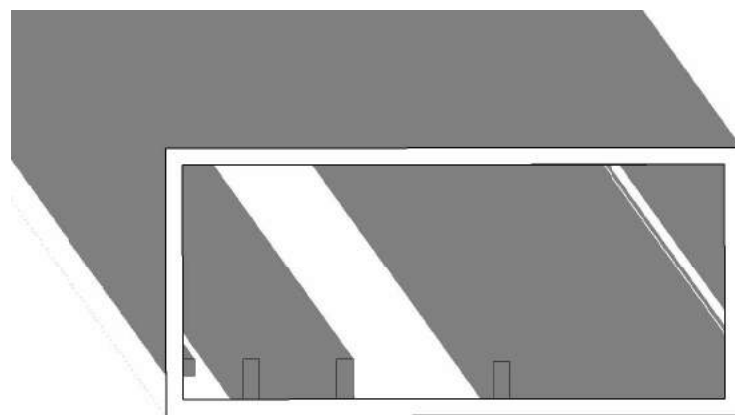
EQUINOX AFTERNOON



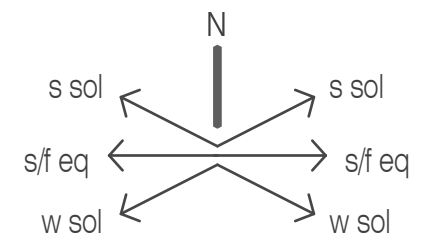
EQUINOX MORNING



WINTER AFTERNOON



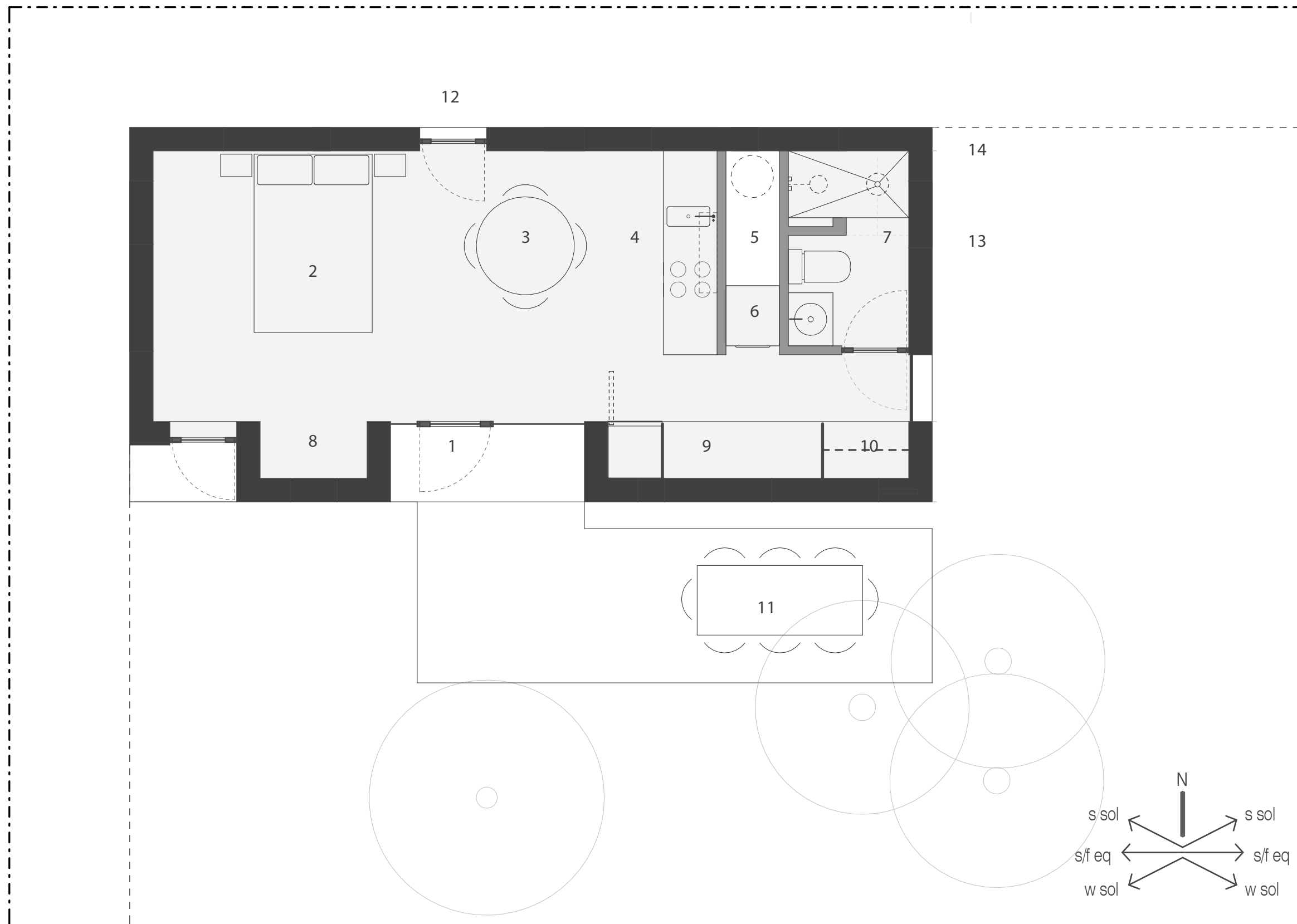
WINTER MORNING





TECHNICAL DRAWINGS

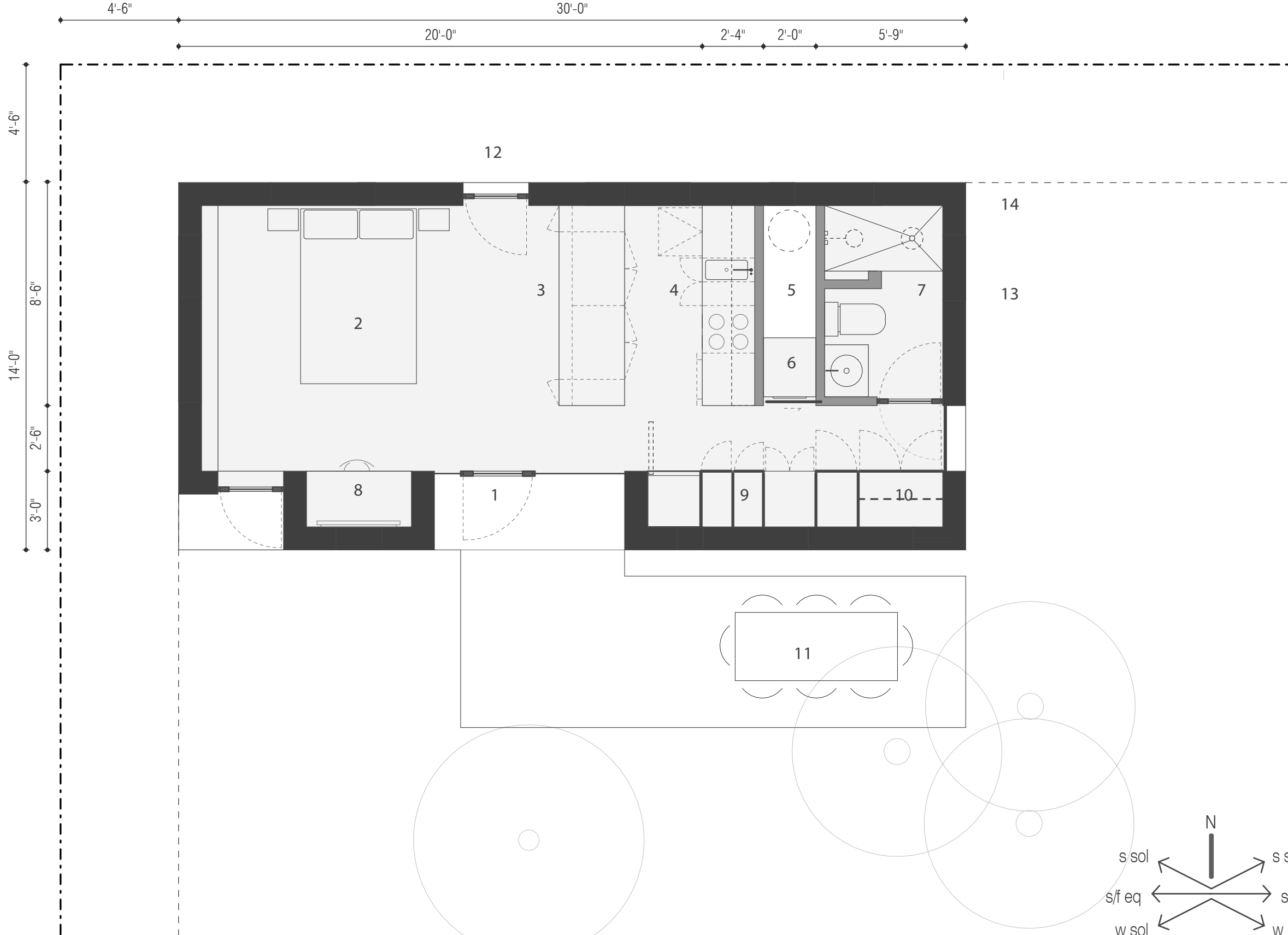
# STUDIO: BASIC FIT-OUT



- 1 ENTRY
- 2 BEDROOM
- 3 DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
- 6 LAUNDRY
- 7 BATHROOM
- 8 FUTURE OFFICE
- 9 ROD AND SHELF
- 10 BUILT-IN CLOSET
- 11 SEMI-PRIVATE TERRACE
- 12 PRIVATE GARDEN
- 13 STORAGE TANK
- 14 TRASH

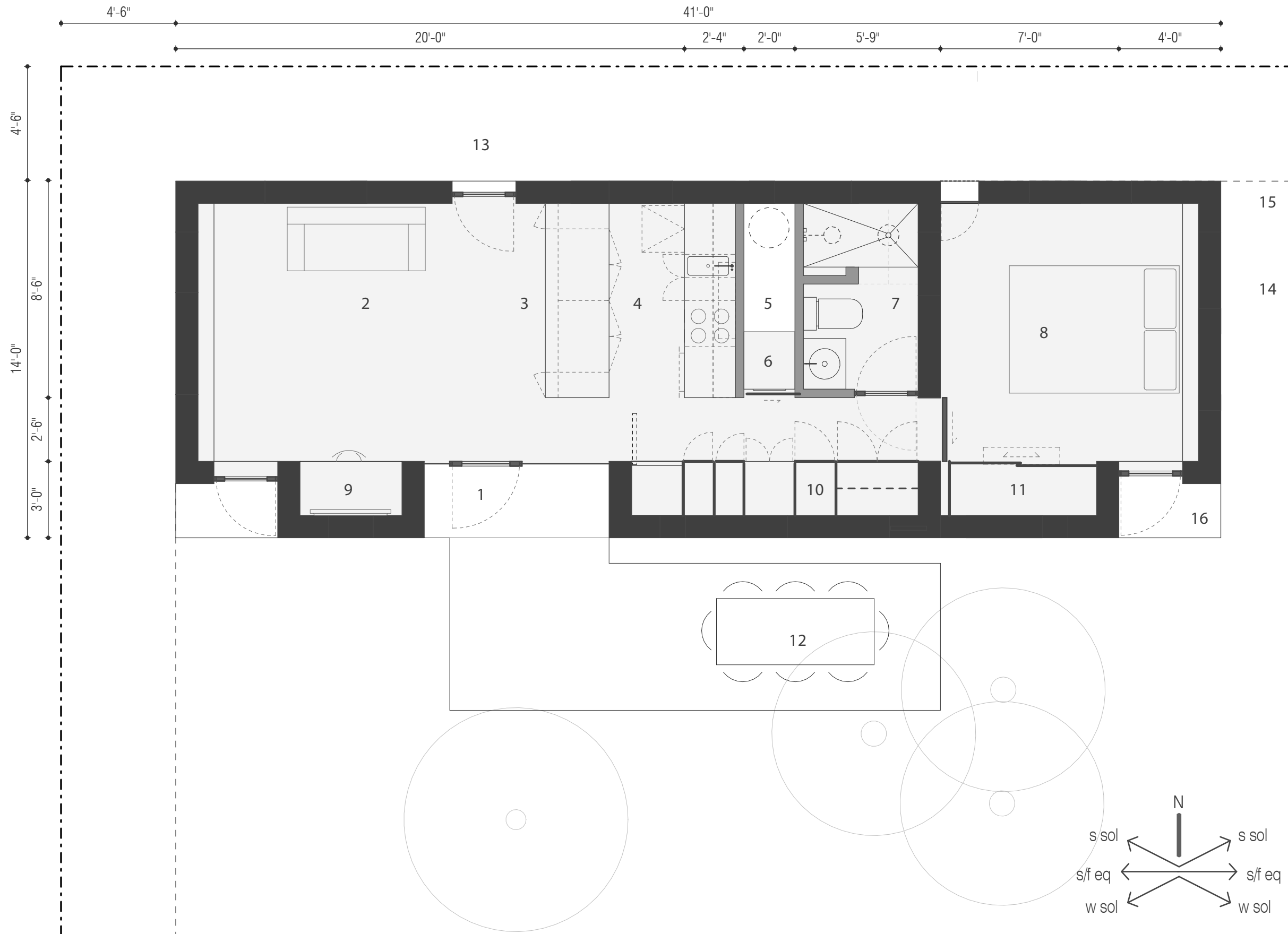


# STUDIO: FULL FIT-OUT

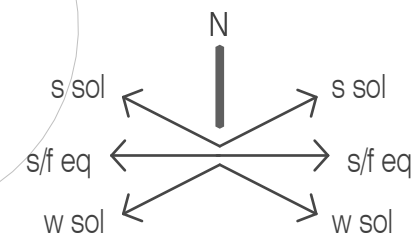


- 1 ENTRY
- 2 BEDROOM
- 3 DINING
- 4 KITCHEN
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- 9 STORAGE
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- 13 STORAGE TANK
- 14 TRASH

# 1-BEDROOM : FULL FIT-OUT

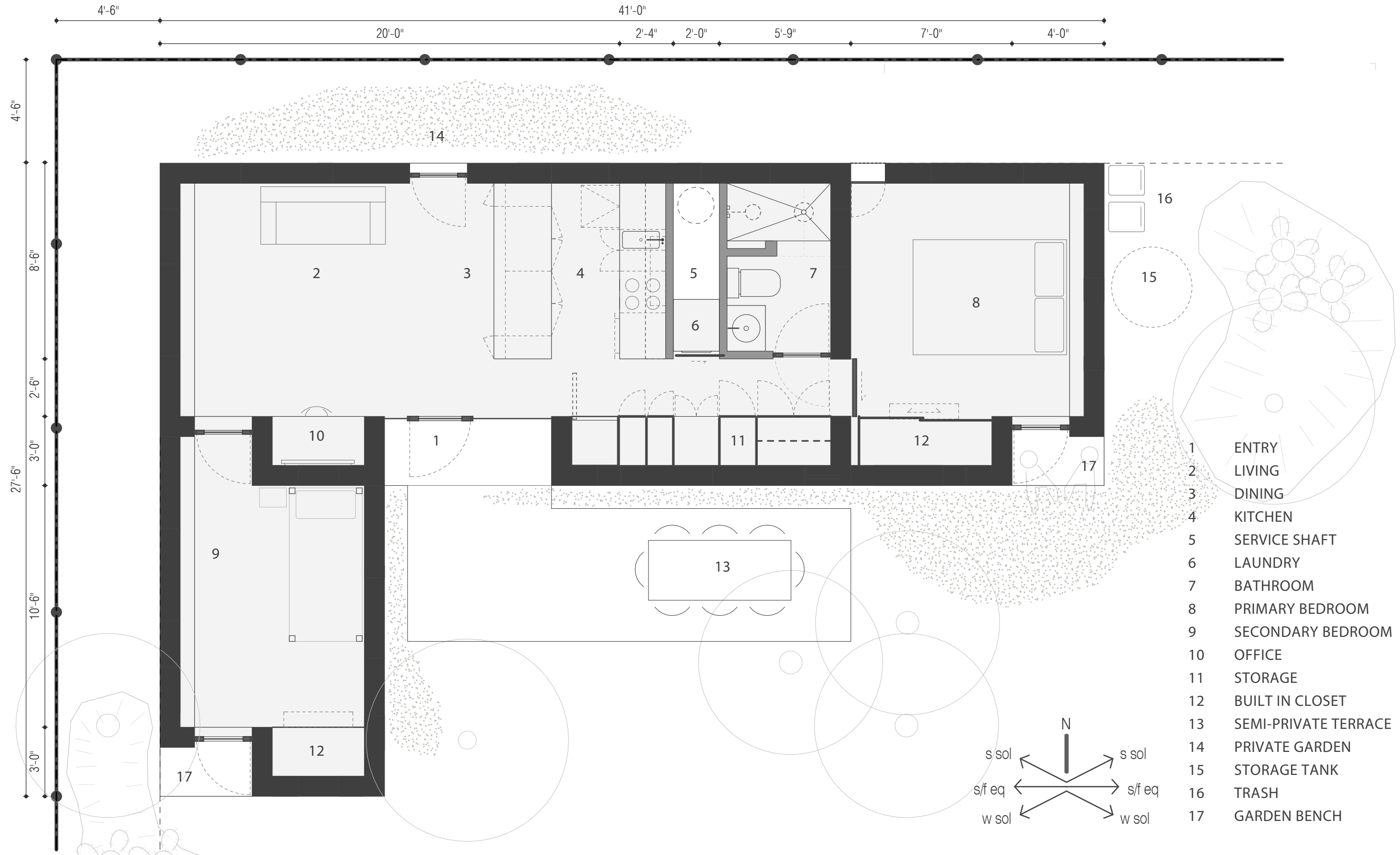


- 1 ENTRY
- 2 LIVING
- 3 DINING
- 4 KITCHEN
- 5 SERVICE SHAFT
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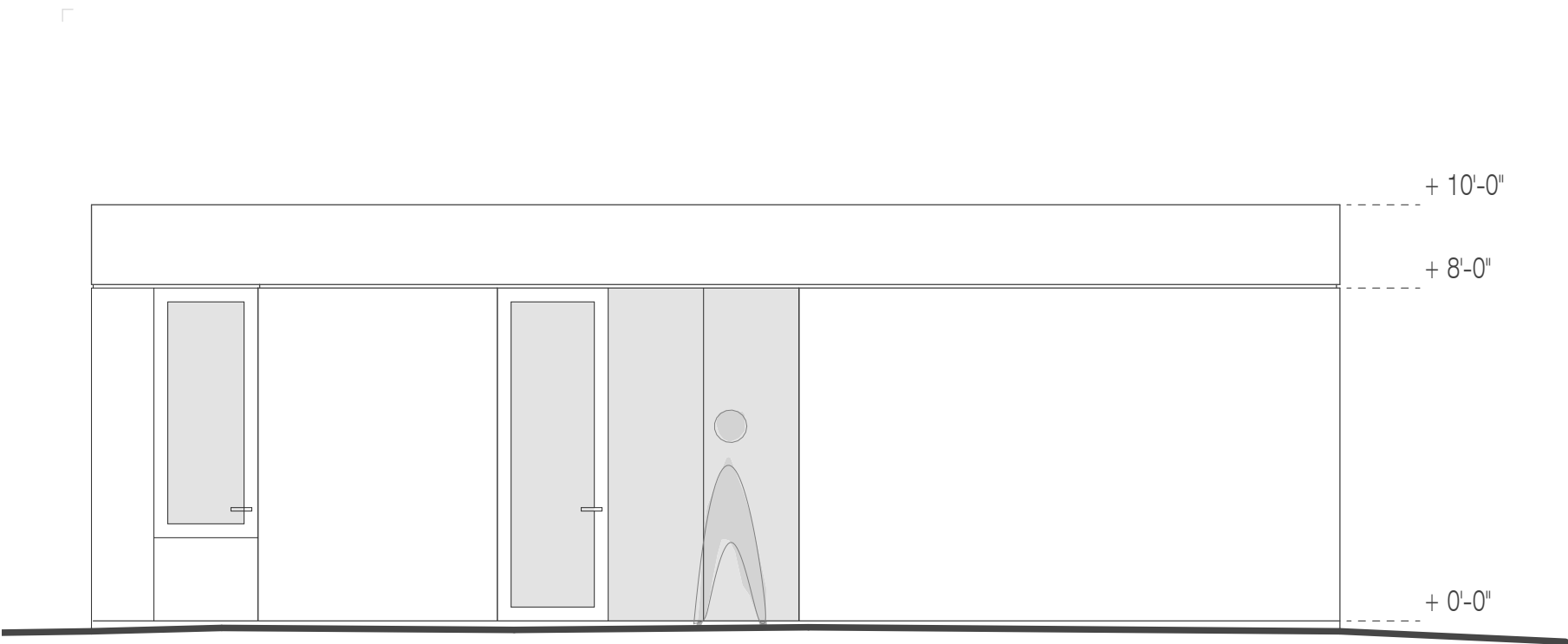




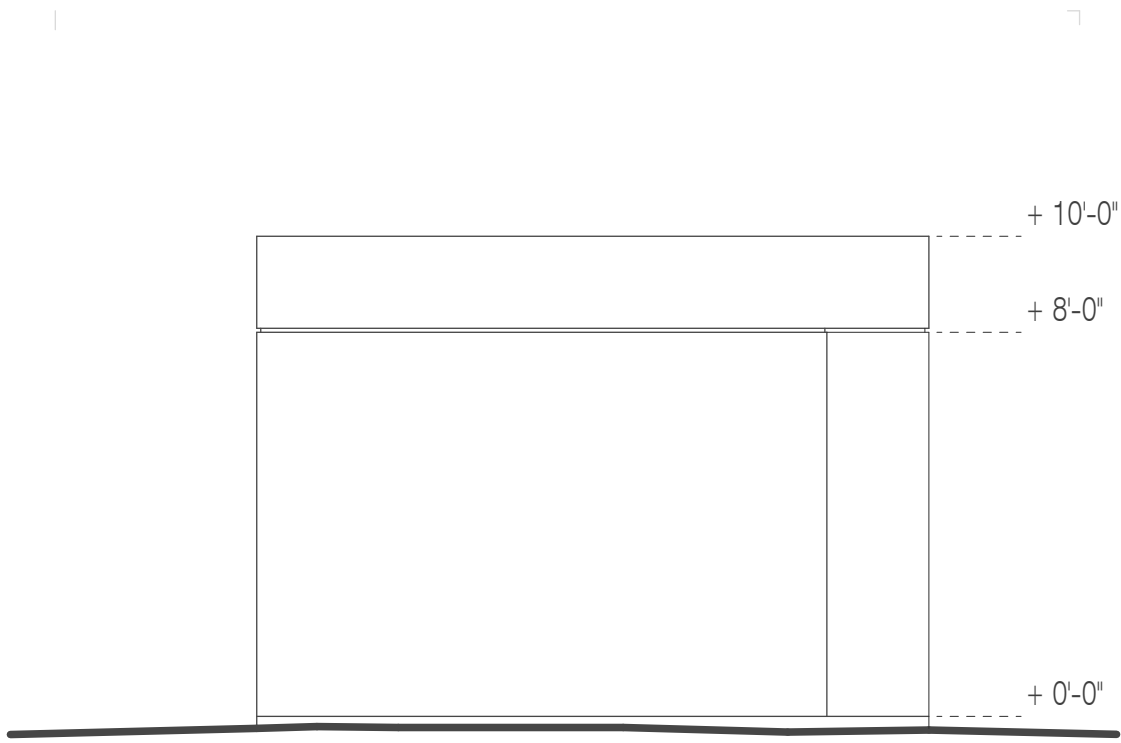
# 2-BEDROOM : FULL FIT-OUT



STUDIO : SOUTH + WEST ELEVATIONS



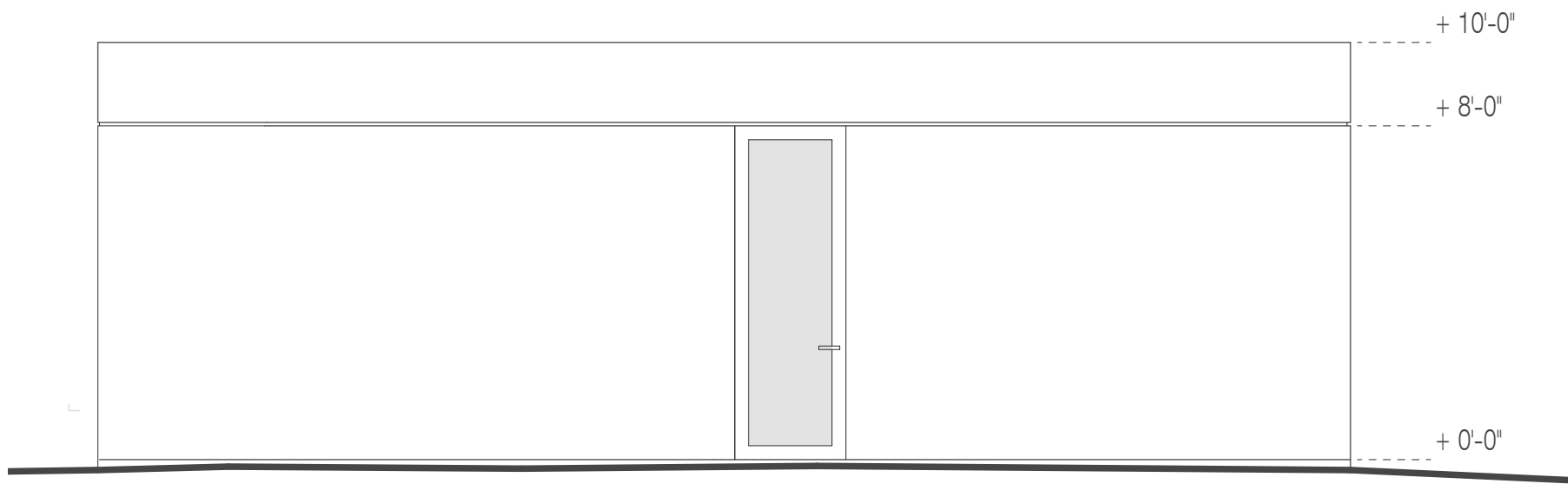
SOUTH ELEVATION



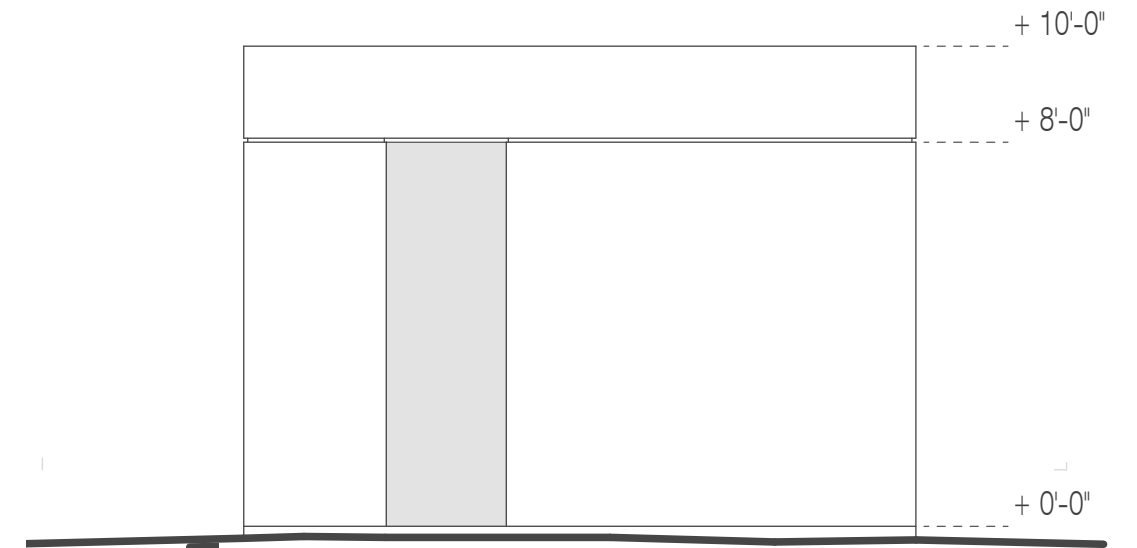
WEST ELEVATION



STUDIO : NORTH + EAST ELEVATIONS



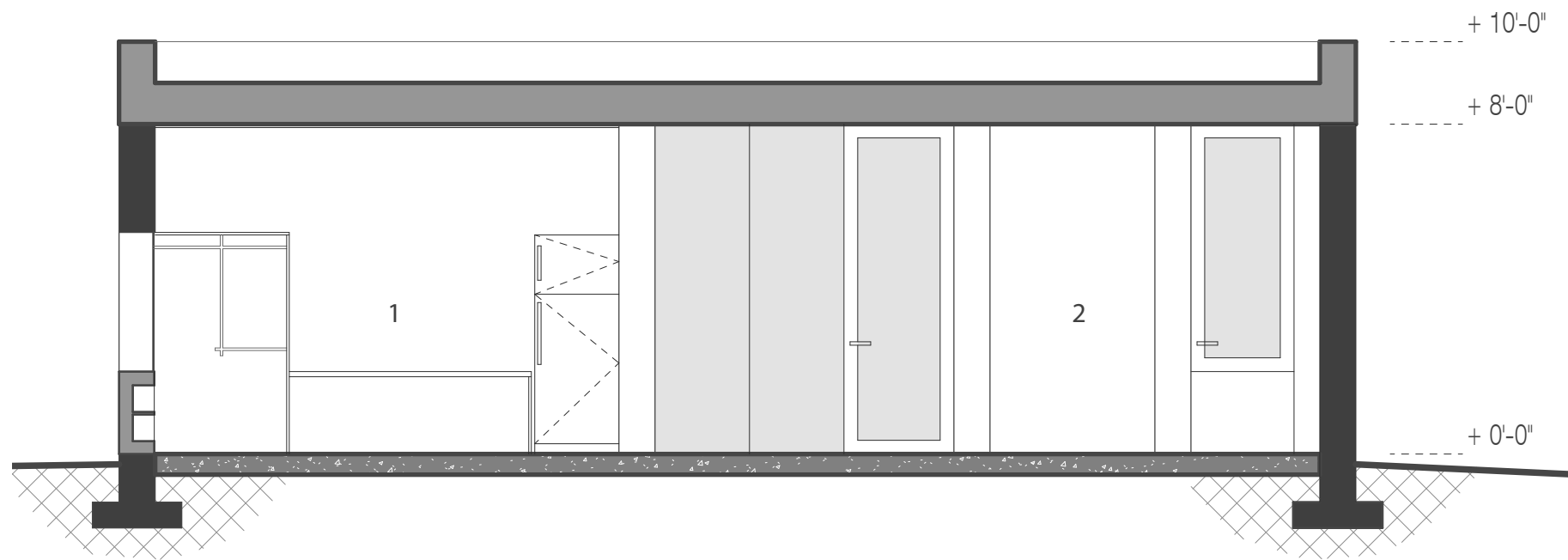
NORTH ELEVATION



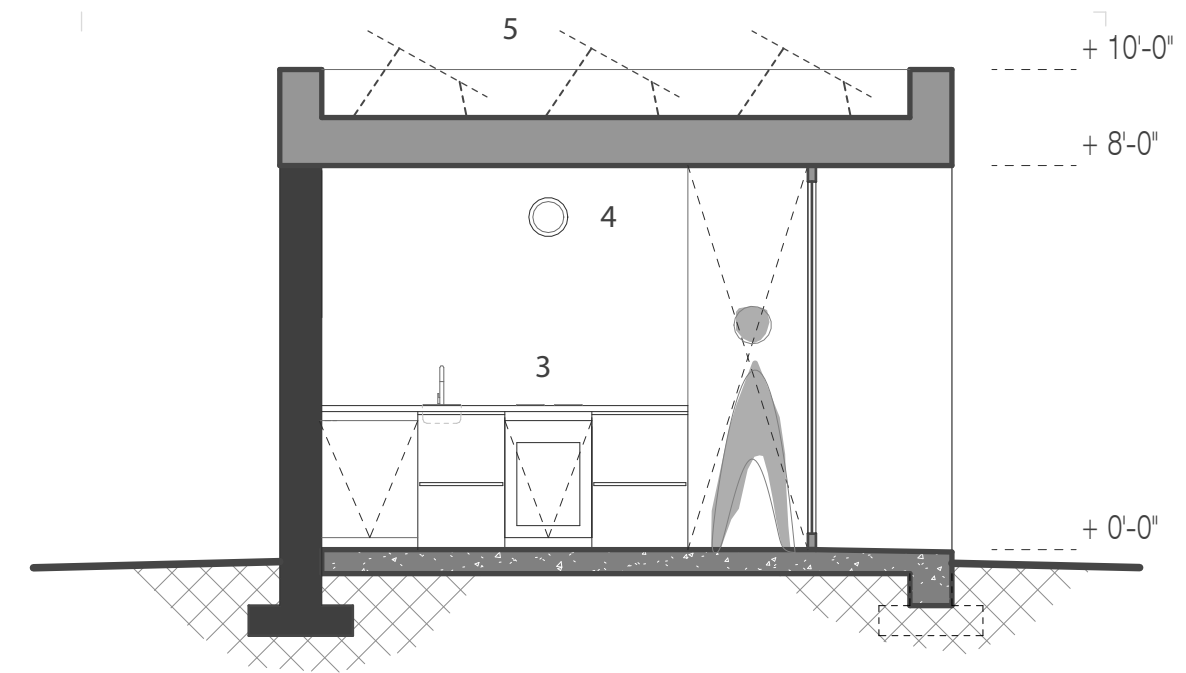
EAST ELEVATION

# STUDIO : LONGITUDINAL + CROSS SECTION - BASIC FIT-OUT

- 1 SHELF & ROD
- 2 FUTURE DESK/TV
- 3 KITCHEN w/ OPEN SHELVES
- 4 AIR EXTRACTOR
- 5 FUTURE SOLAR PANELS



LONGITUDINAL SECTION

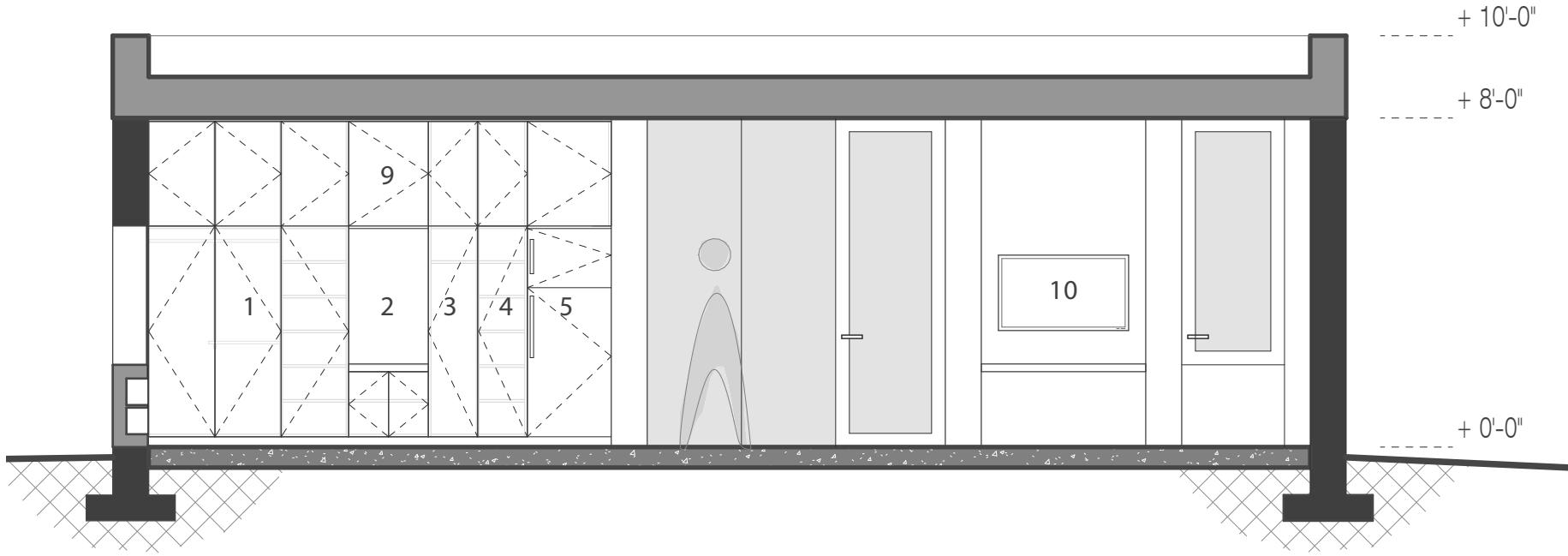


CROSS SECTION

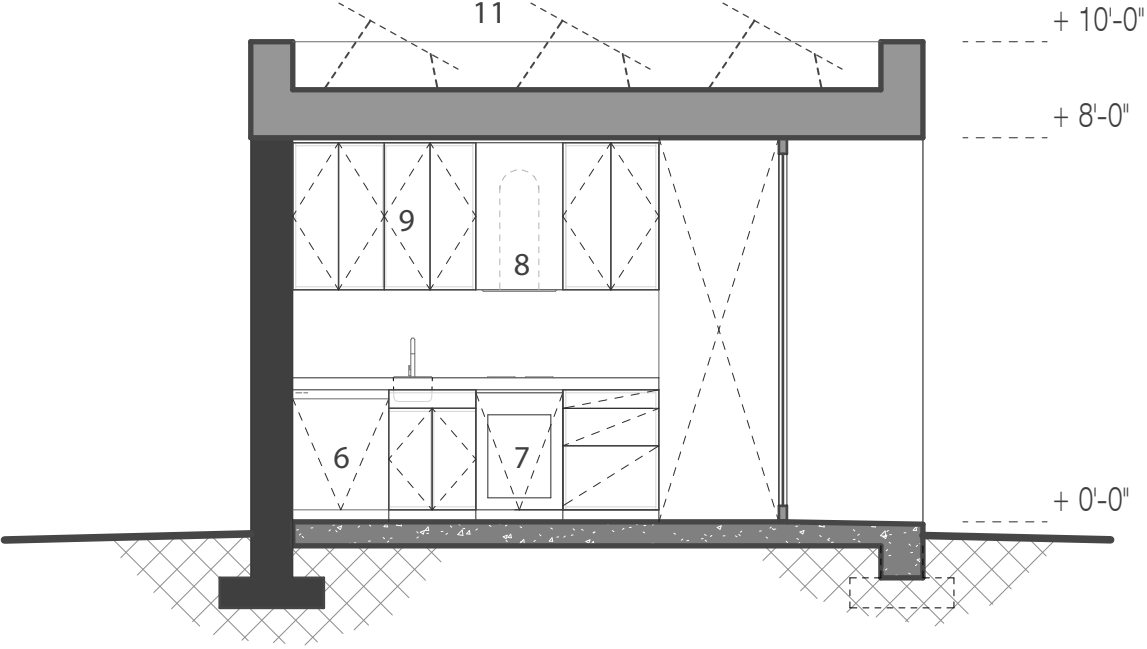


STUDIO : LONGITUDINAL + CROSS SECTION - FULL FIT-OUT

- 1 CLOSET
- 2 LAUNDRY/VANITY
- 3 BROOM CLOSET
- 4 PANTRY
- 5 FRIDGE
- 6 DISHWASHER
- 7 OVEN
- 8 AIR EXTRACTOR
- 9 CABINETS (TYP.)
- 10 HOME OFFICE DESK/TV
- 11 FUTURE SOLAR PANELS



LONGITUDINAL SECTION



CROSS SECTION

THANK YOU